

## Abatement and Building Demolition Sequencing at the Former IP Mill, Erving, Massachusetts

**TO:** Bryan Smith, Town Administrator  
Mariah Kurtz, Town Planner

**FROM:** Brian F. Day and Tracy Adamski, Tighe & Bond

**DATE:** March 20, 2023

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Tighe & Bond was retained by the Town of Erving, Massachusetts to examine four potential demolition concepts created to support re-development opportunities for the referenced multi-building site. Each of these concepts include the need for varying levels of asbestos and hazardous materials abatement, selective demolition at building separation points, and structural improvements at separation points for those buildings to remain. The Town has requested additional clarification regarding the Opinions of Probable Construction Costs (OPCC) provided to the Town on February 6, 2023. Clarifications are provided herein.

It is important to note that the information provided is an engineer's Opinion of Probable Construction Cost (OPCC). As noted with each OPCC, "Tighe & Bond has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing, and that the estimates of probable construction costs are made on the basis of Tighe & Bond's professional judgment and experience. Tighe & Bond makes no guarantee nor warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from this estimate of the Probable Construction Cost." The final construction costs are dependent on the contractor bids received and can be highly variable as they are directly influenced by the competitive bidding climate, contractors backlog, quantity/availability of other similar public project bidding opportunities and disposal market pricing.

Furthermore, the OPCC includes contingencies that are identified as percentages of construction costs. These include engineering fees, contingency for scope items that may not have been fully developed at the particular phase of the project, project unknowns and General Conditions (to cover contractor costs such as mobilization, demobilization, bonds, insurance, etc.). These OPCCs are intended for budget planning purposes only. Contractors bidding on the project will prepare their costs in concert with current market conditions, competitive bidding atmosphere and their overall interest with the project. Most contractors will also consider the wood and steel salvage opportunities the site presents and incorporate those potential profits into their bid.

We have included contingencies to also account for some market fluctuations. For the engineering fees, again, the OPCC is intended for planning purposes and is not a proposal with defined tasks and cost. As requested, we have provided information pertaining to what engineering fees typically entail. When we develop the actual proposal of engineering services, we work with our clients to identify specific roles and responsibilities that we then use to develop our scope and fee. It is at the proposal stage that we discuss the level of oversight, services and administrative needs for the project and refine the engineering fee, while preserving the interests of the Town.

To satisfy a specific Town request, we included a summary of costs resulting from two recent demolition projects in which we served in a similar role. Please understand that every project provides its own challenges, including compliance to applicable regulatory

requirements, which directly affect the level of engineering effort needed for the project. Due to these “per project” variables, we provided project examples where our overall effort was approximately 16% of total contractor cost and another in which our fees were 20% of contractor cost. We envision that, due to the magnitude and complexity of the IP Mill project, coupled with an Owner interested in providing management resources to support the demolition, our engineering fees will vary between 14%-20% of total contractor cost.

Example 1: Central Massachusetts public building demolition project with asbestos and hazardous materials abatement completed in 2022. The lowest bid was accepted at approximately \$290,000. Tighe & Bond provided project design, bidding services, contractor award, submittal reviews, part-time on-site observation for demolition, asbestos and hazardous materials abatement management, for a fee of approximately \$57,000.

Example 2: Western Massachusetts public building demolition project with asbestos and hazardous materials abatement completed in 2020. The lowest contractor bid was accepted at approximately \$1,100,000. Tighe & Bond provided project design, bidding services, contractor award, submittal reviews, part-time on-site observation for demolition, asbestos and hazardous materials abatement management, for a fee of approximately \$170,000.

### **Revised OPCCs**

Enclosed with this submission are four individual Concepts which were defined by the Town of Erving and include a series of different building abatement / demolition / structural repair scenarios. The OPCC includes a cost opinion that defines each building’s 2017 and 2023 proposed demolition budgets. Also included are cost estimates for both known and assumed asbestos abatement needs for each building. Certain concepts include the need for structural repair for buildings to remain and for placement of fill in deep excavations. Each of these needs were evaluated and made part of the overall Concept budgets.

The OPCCs are intended to represent the current climate of demolition and abatement work and current industry cost. The demolition industry is directly affected by inflation, fuel cost, salvage cost and waste disposal trends. These factors are always evolving and directly affect pricing in both the public and private sectors. Further, solid waste, coated waste, special waste and hazardous materials waste disposal is currently at a premium, continues to be subject to increasing regulatory restrictions and waste bans, resulting in fewer disposal locations to choose from. These restrictions have resulted in contractors using disposal locations considerably further away from Massachusetts thus increasing operating and transportation cost, while at the same time disposal facilities are charging the highest premiums ever seen in the waste disposal industry. The volatility in the market is not expected to change and is reflected in the cost opinion.

When comparing the 2017 demolition costs with current cost opinions, most individual buildings were subject to a \$15%-25% inflation increase. Of particular note is Building 2, in which a budget of approximately \$320,000 for demolition was established in 2017. While revising budgets for 2023 we re-visited this cost and determined that our initial estimation was lower than industry standards and, due to the building being more than four stories in height, it is likely that specialized demolition equipment will be needed. Building 2 2023 demolition cost opinion was then reassessed with a conservative budget of \$825,000. This cost may be lowered by the value of salvage materials, such as wood beams, columns and planking.

## **Engineering Services for Demolition Projects**

Below are examples of consultation services typical of a publicly bid demolition project of this magnitude, many of which are necessary for state and federal regulatory compliance.

- Client scoping meeting
- Site visits / field work by design team to understand abatement and demolition details including establishing limits of work, protection of certain features, utilities locations and termination points, contractor site use, logistics and site restoration.
- Assessment and design of building repair scenarios
- Wetlands permitting, management and reporting
- Historical preservation coordination and reporting
- Underground investigations around building foundations to investigate for underground tanks, asbestos waterproofing mastics and other systems
- Preparation of publicly bid Contract Documents and Drawings
- Project Bidding including participation in pre-bid site meetings, canvassing of bids, contractor selection and contractor award

Once the design and bidding are complete and a Contractor has been awarded the project, the following Construction (or abatement and demolition phase) Phase services commence:

- Contractor scoping meetings
- Submittal review and comment period
- Full to part time Construction Phase oversight by a staff engineer or scientist often averaging 15 - 20 hours per week for the duration of the project. At this time, the schedule is often dictated by the contractor and the engineer establishes their level of construction phase effort in support of that schedule. Other factors such as contractor history, reputation and experience are evaluated when defining the level of weekly oversight.
- Asbestos project monitoring /consultation services by 3<sup>rd</sup> party licensed asbestos professionals are required by law during various phases of asbestos abatement. This effort is often part time and fluctuates considerably for most of the same reasons listed above.
- Non-Traditional Work Plan (NTWP) asbestos design preparation and submission to MassDEP in the event the contractor opts to bulk load certain asbestos containing materials. The IP Mill is a likely candidate for bulk loading operations due to the presence of asbestos roofing material observed around several dilapidated roofing areas and at excessive roof heights which prohibit the use of traditional asbestos abatement methods and require site specific MassDEP approval.
- For all NTWP work, MassDEP requires the full-time presence of a licensed project monitor, retained by the owner, to observe asbestos abatement activities, record observations, conduct visual inspections, collect perimeter air samples and perform laboratory analysis on a daily basis and during all asbestos disturbance activity. This level of project monitoring is a good example of a service which is necessary, but difficult to define at this conceptual stage of the project.
- Part time oversight and documentation during any hazardous materials or universal waste materials removal.

- Structural improvement construction inspections
- During the course of building demolition, we often provide part time oversight by one of our engineer/scientist/project monitors who also possesses demolition experience. During abatement activity, we staff the project with a licensed project monitor who can serve both roles and provide some efficiency.
- Our demolition phase observer will document site activity and safety, project progress, keep track of waste quantity as its being generated, document lawful handling and waste disposal, document compliance with the project specifications and applicable environmental regulations, document instances in which shortcomings are observed.
- Our demolition phase observer acts as liaison between Owner and contractor and will represent the Owner in contractor disputes, change orders, quantity discrepancies, scope creep items, and most any other negotiating effort, while acting in the Towns best interests. Construction observer presence is not required by law such as a project monitor, but it is an important service that helps protect the liability and best interests of the Owner. On site presence can range from full time to part time but often averages 20 hours per week during busy site work.
- Contractor project closeout package review and comment.
- Project closeout report to contain monitors observances, waste shipment records generated, air sampling results, NTWP status, air sampling documentation, notifications, and any other pertinent documents generated during the Construction phase.

### **Memorandum Scope**

The following Abatement and Demolition Concepts were derived by the Town, evaluated by Tighe & Bond and made part of this OPCC:

1. Update the existing Opinion of Probable Costs (OPC) to separate and demolish building sections 4e, 5a, 5b, 5c, and 7a/7b.
2. Prepare an OPC to demolish all structures with exception to Buildings 2 and 8, after already demolishing the five buildings above.
3. Prepare an OPC to demolish everything except Buildings 2 and 8.
4. Prepare an OPC to demolish everything all at once under one project scope.

Presented in Appendix A are the four Abatement, Demolition and Building Repair concepts. Each concept includes a site map highlighting building abatement/demolition locations, a cost opinion for abatement, demolition and for repair of building envelopes / infill construction in the event certain building(s) are slated to remain.

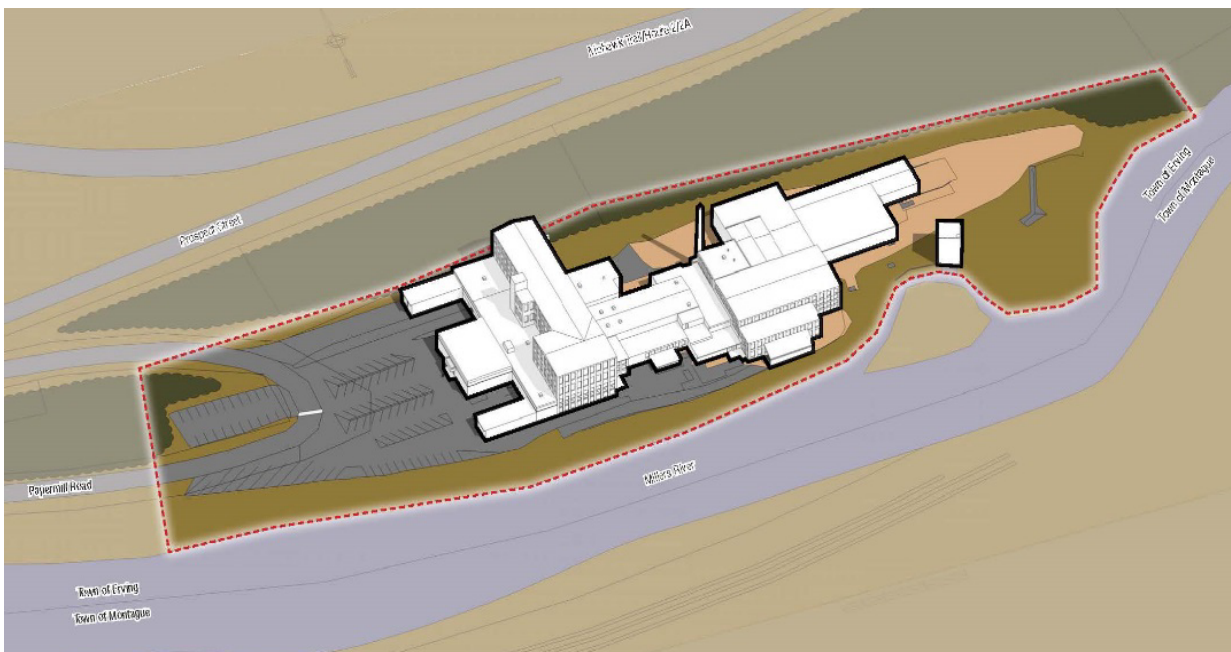
Appendix B contains Asbestos Abatement inventory information on a per building basis.

### **Site Details**

The former International Paper Mill (IP Mill) is located at 8 Papermill Road in Erving, Massachusetts. The mill is bordered by the Millers River to the south, Papermill Road to the west, Prospect Street and Mohawk Trail (Route 2) to the north, and a wooded hillside to the

east. The river represents the town line between the Town of Erving and the Town of Montague.

The mill complex is located on a parcel of land that is about 49.3 acres in area and includes a series of buildings. Most buildings are interconnected, and all are part of the mill complex. A pump house, known as Building 8, is also part of the complex but is free standing and located on the riverbank. Building 3 is also a free-standing metal butler type building located a few feet east of Building 2 and previously housed an oil system. The site includes a number of improvements for its use, including a perimeter fence, access drives, asphalt parking lots, and dirt and gravel paths. The north side of the property is a steep wooded embankment leading uphill to Route 2. The south side of the property is a steep riverbank leading downhill to the Millers River.



***Former IP Mill Complex, 8 Papermill Road, Erving, Massachusetts***

## **Individual Building Details**

### **Building 1 (1a, 1b, 1c, 1d and 1e)**

Building 1 and its sub-buildings include the front office and receiving areas that were built in 1966. The building core is two-stories and includes five distinct subareas, some of which are one-story. Building 1a is the main office area. Buildings 1b and 1c are product handling areas and Buildings 1d and 1e were receiving docks. An access tunnel underneath Building 1c provides vehicular access to the interior and rear of the site and truck access to the rear loading area. The combined building footprint totals approximately 18,000 square feet. Interior asbestos and hazardous materials abatement has been completed under another remediation effort. Remaining abatement primarily consists of roofing materials which have been assumed as asbestos-containing. Cost for asbestos abatement is estimated at **\$110,000**. Cost for demolition of this section of buildings is estimated at **\$166,000**.

## Building 2

Building 2 is one of the most historic portions of the entire mill complex. The building was a part of the original 1902 mill construction and housed drying and stacking operations in the paper manufacturing process. The building is five stories in height and forms a slight "L" shape in floor plan. The building's footprint is approximately 13,200 square feet. The access tunnel that begins at the front of Building 1 continues under Building 2 and provides vehicular access to the rear of the site. Interior asbestos and hazardous materials abatement has been completed under another remediation effort. Remaining abatement primarily consists of roofing materials which have been assumed as asbestos-containing and glazing compounds / caulking applications associated with a portion of the wood window systems which have been confirmed as asbestos-containing. Cost for abatement is estimated at **\$130,000**. Cost for demolition of this building is estimated at **\$825,000**. Building 2 has been considered at great length to remain and be redeveloped in the future. An investigation to identify level of effort to render the building safe, once all surrounding buildings are demolished, was conducted. Costs to conduct building envelope repairs and install masonry infills in openings, etc., is estimated at **\$275,000**. Refer to Building 2 Concept in Appendix A for further repair cost information.

Building Label	Footprint (SF)	Stories (#)	Total Area (SF)
1a	4,520	2	9,040
1b	7,040	2	14,080
1c	2,750	1	2,750
1d	1,640	1	1,640
1e	1,640	1	1,640
2	13,210	4	52,840
3	3,220	1	3,220
4a	6,580	3	19,740
4b	3,040	3	9,120
4c	2,700	2	5,400



Building Label	Footprint (SF)	Stories (#)	Total Area (SF)
4d	970	1	970
4e	1,400	1	1,400
4f	960	2	1,920
5a	8,640	4	34,560
5b	2,530	3	7,590
5c	1,010	1	1,010
5d	2,110	2	4,220
5e	700	2	1,400
6a	3,010	3	9,030
6b	2,830	3	11,400
6c	1,970	3	5,910
7a	6,030	1	6,030
7b	5,010	1	5,010
8	690	2	1,380
<b>TOTAL</b>	<b>65,200</b>	<b>-</b>	<b>211,390</b>

## Former IP Mill Complex – Individual Building Number Designation

## Building 3

Building 3 is a one story (20 feet or more in height) structure that is not directly connected to the other portions of the mill complex. Building 3 served as "Fuel Storage" and is

approximately 3,200 square feet in size. Previous inspections confirmed the absence of accessible interior asbestos-containing materials (ACMs). Hazardous materials investigation to assess the condition of the existing fuel storage system was not performed as we understand that the fuels were captured / removed during the decommissioning of the complex many years ago however it is possible some additional remediation of oil remnant will be necessary. Oil remediation efforts were not included in previous building 3 demolition cost opinions; therefore, this effort has increased from \$10,000 to \$21,000. Remaining exterior abatement consists of roofing materials which have been assumed as asbestos-containing. Cost for abatement is estimated at **\$26,000**. Cost for demolition of this building is estimated at **\$21,000**.

#### **Building 4 (4a, 4b, 4c, 4d, 4e and 4f)**

Building 4 and its sub-buildings were also a part of the most historic and original portion of the mill dating from 1902. These spaces housed core machinery and included substantial concrete structures, small alcoves and short ceiling heights throughout its lower levels.

The main portion of Building 4 is labeled as Building 4a. The other Buildings, 4b, 4c, 4d, 4e and 4f are interconnected and surround Building 4. The buildings vary considerably in height and depth between one story and three stories and total approximately 38,000 square feet. Total building footprint is approximately 15,000 square feet in size. Interior asbestos and hazardous materials abatement has been completed under another remediation effort. Remaining abatement primarily consists of roofing materials which have been assumed as asbestos-containing and window glazing compounds which have been confirmed as an ACM. Cost for abatement is estimated at **\$125,000**. Given the building depths in these areas it is recommend the project carry a budget of **\$75,000** for purchase and placement of ordinary borrow or other type of fill to manage the voids left after deep basement demolition. Cost for demolition of this section of buildings (in addition to the soils) is estimated at **\$405,300**.

#### **Building 5 (5a, 5b, 5c and 5d)**

Building 5 included the Beater Room, Rag Room and Boiler Building (5d) that were part of the paper production processes. The lower levels are the deepest areas of the complex and include large water holding tanks, all of which remain. The main portion of Building 5 is labeled as Building 5a. The other portions of the building are sub-structures to it, including 5b and 5c and 5e. Building 5d is the Boiler Room and includes its associated brick and mortar stack. The boiler room is a one-story structure, approximately 35 feet in height. We understand that stack demolition was not included in previous building 5d demolition cost opinions; therefore, this individual demolition effort has increased from \$10,000 to \$21,000. The buildings vary in height between 1-story and 4-stories and total approximately 48,000 square feet. Total building footprints are approximately 15,000 square feet. Interior asbestos and hazardous materials abatement has been completed under another remediation effort. Remaining exterior abatement primarily consists of roofing materials which have been assumed as asbestos-containing and window glazing compounds which have been confirmed as an ACM. Cost for abatement is estimated at **\$125,000**. Costs to conduct building envelope repairs and install masonry infills in openings in the event Concept 1 is selected, is estimated at **\$275,000**. Given the building depths in these areas it is recommend the project carry a budget of **\$50,000** for purchase and placement of ordinary borrow or other type of fill to manage the voids left after deep basement demolition. Cost for demolition of this section of buildings (not including soils) is estimated at **\$359,000**.

**Building 6 (6a, 6b and 6c)**

Building 6 includes building areas 6a, 6b and 6c. Each portion of the building is 3-stories in height and totals approximately 26,000 square feet. Total building footprint is approximately 10,000 square feet. Interior asbestos and hazardous materials abatement has been completed under another remediation effort. Remaining abatement primarily consists of roofing materials which have been assumed as asbestos-containing and window glazing compounds and caulking which have been confirmed as an ACM. Cost for abatement is estimated at **\$83,000**. Cost for demolition of this section of buildings is estimated at **\$130,000**.

**Building 7 (7a and 7b)**

Buildings 7a and 7b are the newest structures at the complex. The Stock house and shipping areas are separate buildings with loading docks that were built in the 1990s and totals approximately 11,000 square feet in size. Interior asbestos and hazardous materials abatement has been completed under another remediation effort. Remaining exterior abatement consists of roofing materials which have been assumed as asbestos-containing but are consistent with rubber membrane and are likely to be free of asbestos. Cost for abatement is estimated at **\$88,000**. Cost for demolition of buildings 7a and 7b are estimated at **\$41,000**.

**Building 8**

Building 8 is a separate brick bearing three story building that is positioned on the downslope toward Millers River. The building footprint is estimated at 700 square feet. Interior asbestos and hazardous materials abatement, including window systems, has been completed under another remediation effort. Remaining exterior abatement consists of roofing materials which have been assumed as asbestos-containing. Cost for abatement is estimated at **\$8,000**. Given the buildings proximity to the river, compliance to a host of regulatory requirements is necessary and will likely include provisions for water protection measures during demolition. Construction and maintenance of these measures will increase overall building demolition cost which is now estimated at **\$35,000**.

**Summary of Project Costs**

Opinions of probable asbestos / hazardous materials abatement, demolition and building repair costs were developed for each Concept. Asbestos and hazardous materials cost was derived from previous site wide inspection efforts conducted in support of various abatement projects which were managed by Tighe & Bond throughout the last several years. Building repair considerations were developed from on-site evaluations to understand building envelope repairs and masonry infill construction needs to make buildings to remain safe. Demolition costs were re-evaluated since 2017 and have been updated to reflect current market conditions.

The asbestos and hazardous materials abatement cost opinions are largely affiliated with roofing materials which have not been tested to date, therefore they are assumed to contain asbestos as required by regulation. Regardless of roof material type, each building section includes an allowance for asbestos roof/roof cement abatement. The asbestos abatement cost opinions for Concepts 1-4 are conservative and it is likely that, if testing is undertaken to confirm or deny the presence of asbestos, this portion of the demolition budget may be reduced considerably.

Also enclosed and made part of this Memorandum are the following:

- Appendix A: Concepts 1-4, Cost Opinions and associated Site Maps

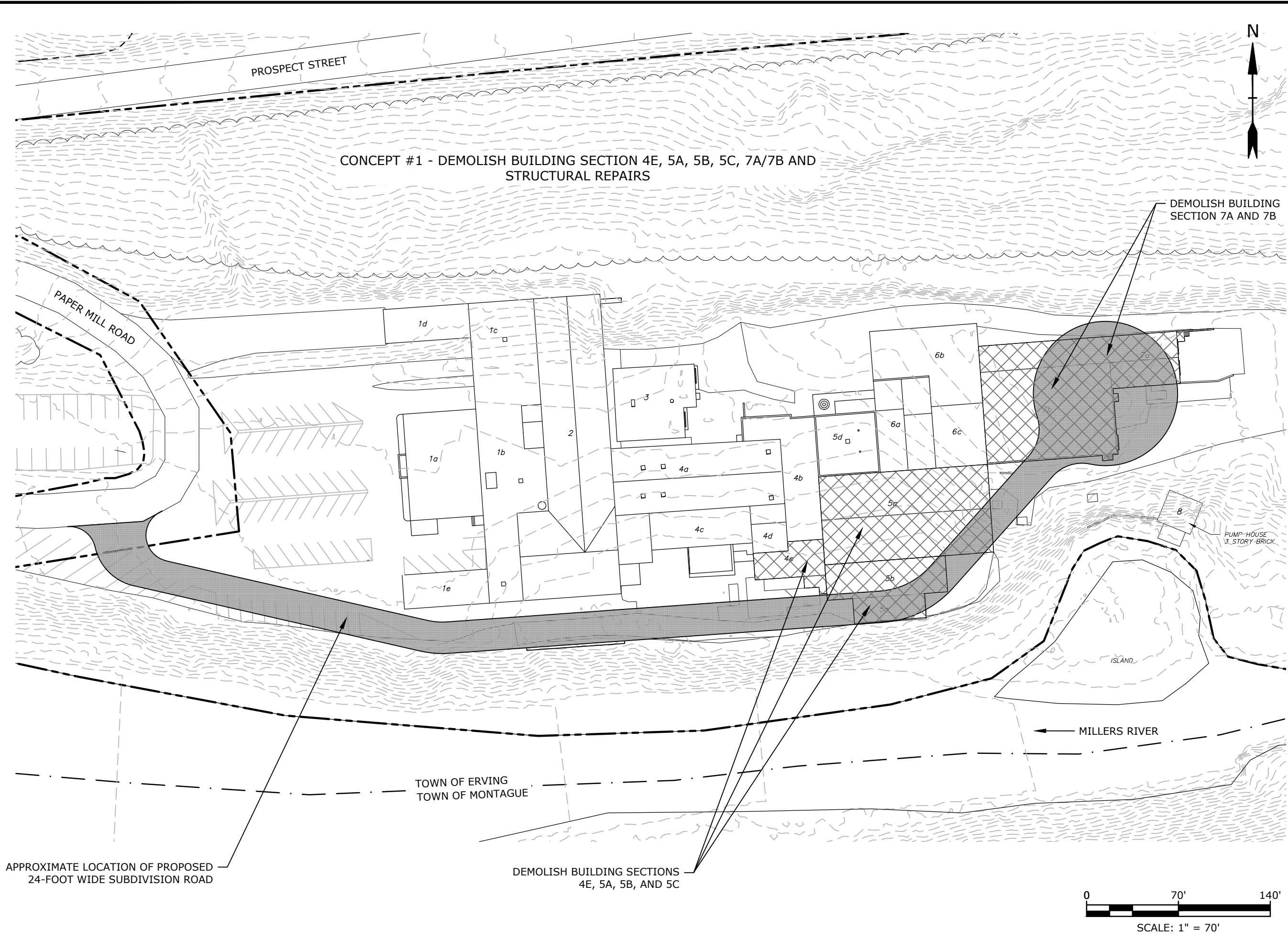


- Appendix B: Asbestos Abatement Inventory Table
- Appendix C: Revised Cost Opinion Table

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APPENDIX A  
CONCEPT PLAN  
NOT FOR  
CONSTRUCTION

Erving  
International  
Paper Mill  
Redevelopment

Abatement,  
Demolition, and  
Structural Repair  
Concepts #1 - #4

Erving, MA  
FEBRUARY 2023


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DATE:	08/10/2020	
FILE:	E5004-018-C-Roadway Plan.dwg	
DRAWN BY:	TJG	
CHECKED:	TJA	
APPROVED:	TJA	

APPENDIX A - DEMOLITION  
CONCEPT PLAN #1

SCALE: 1" = 70'

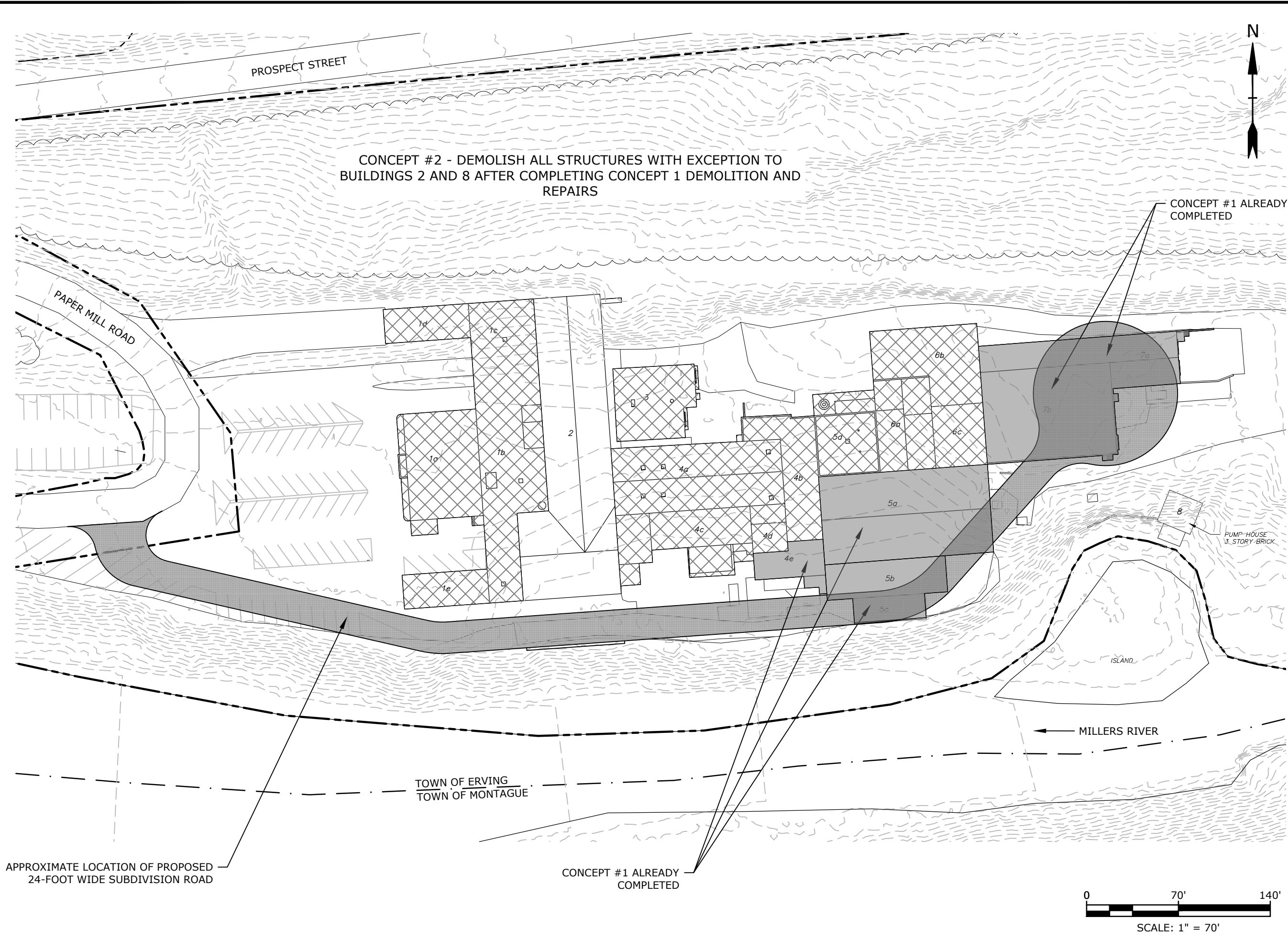
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SHEET 1 OF 4

**OPINION OF PROBABLE ABATEMENT, DEMOLITION AND REPAIR COST****Project: International Paper Mill - Selective Building Abatement and Demolition****Location: Erving MA****Concept 1: Demolish Building Sections 4E, 5A, 5B, 5C, and 7A/7B and Structural Repairs****Revised 3/20/2023**

ACTIVITY	COST
<b>Building / Complex Information</b>	
Abatement and Demolition of Buildings 4e, 5a, 5b, 5c, 7a, 7b and Repairs	
<b>Conceptual Opinion of Probable Construction Costs</b>	
Structural Repair to Adjoining Structures to Remain	\$215,000
Building Demolition	\$354,800
Filll Deep Voids	\$50,000
Asbestos and Hazardous Building Material Abatement	\$205,500
<b>Subtotal OPCC</b>	<b>\$825,300</b>
<b>2023 Allowances</b>	
Contingency (20% )	\$166,000
General Conditions (15% )	\$124,000
Engineering / Construction Phase Management (20%)	\$166,000
<b>Subtotal Allowances</b>	<b>\$456,000</b>
<b>Demolish Buildings 4E, 5A, 5B, 5C, and 7A/7B &amp; 2023 Allowances:</b>	
<b>\$1,281,300</b>	

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Abatement,  
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DRAWN BY:	TJG	
CHECKED:	TJA	
APPROVED:	TJA	

APPENDIX A - DEMOLITION  
CONCEPT PLAN #2

SCALE: 1" = 70'

**CP-02**  
SHEET 2 OF 4

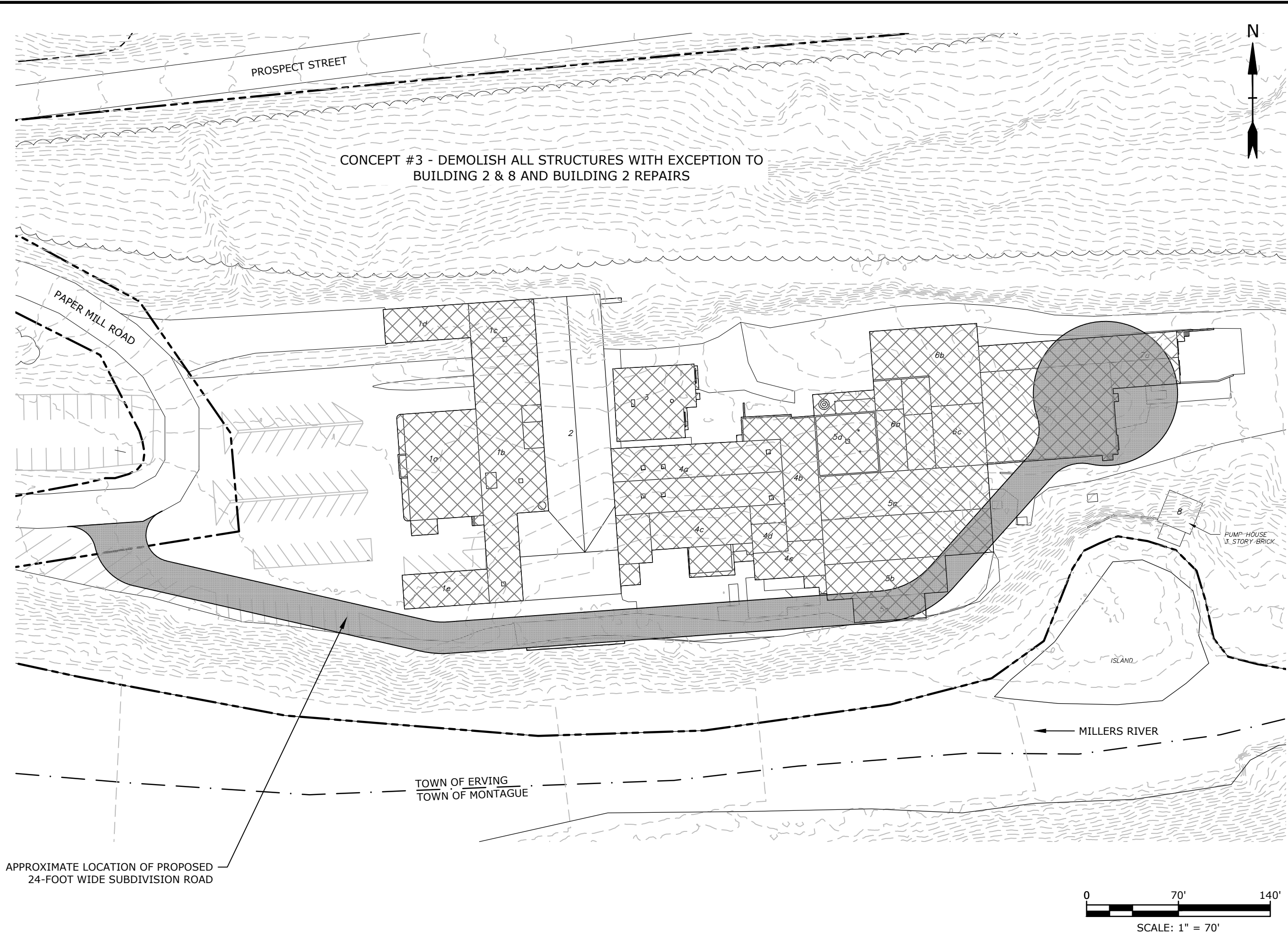


**OPINION OF PROBABLE ABATEMENT, DEMOLITION AND REPAIR****Project: International Paper Mill - Selective Building Abatement and Demolition****Location: Erving MA****Concept 2: Demolish all structures with exception to Buildings 2 and 8 after completing****Concept 1 Demolition and Repairs****Revised 3/20/2023**

ACTIVITY	COST
<b>Building / Complex Information</b>	
Demolition of Building sections 1A, 1B, 1C, 1D, 1E, 3, 4A, 4B,4C, 4D, 4F, 5D, 6A, 6B, 6C after Abatement and Demolition of Buildings 4e, 5a, 5b, 5c, 7a, 7b and Repairs completed. Building 2 and 8 to remain	
<b>Conceptual Opinion of Probable Construction Costs</b>	
Concept 1 Abatement, Demolition and Repairs completed (\$1,281,300)	\$0
Building Demolition	\$767,500
Fill Deep Voids	\$75,000
Building 2 Repairs (no repairs to Building 8)	\$275,000
Asbestos and Hazardous Building Material Abatement	\$351,500
<b>Subtotal OPCC</b>	<b>\$1,469,000</b>
<b>2023 Allowances</b>	
Contingency (20% )	\$294,000
General Conditions (15% )	\$221,000
Engineering Fees (20%)	\$294,000
<b>Subtotal Allowances</b>	<b>\$809,000</b>
Demolition of Building sections 1A, 1B, 1C, 1D, 1E, 3, 4A, 4B,4C, 4D, 4F, 5D, 6A, 6B, 6C after Abatement and Demolition of Buildings 4e, 5a, 5b, 5c, 7a, 7b and Repairs to Building 2 completed and 2023 Allowances. Building 2 and 8 to remain. No repairs to Building 8.	
	<b>\$2,278,000</b>

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APPROVED:	TJA	

APPENDIX A - DEMOLITION  
CONCEPT PLAN #3

SCALE: 1" = 70'

**Location: Erving MA**

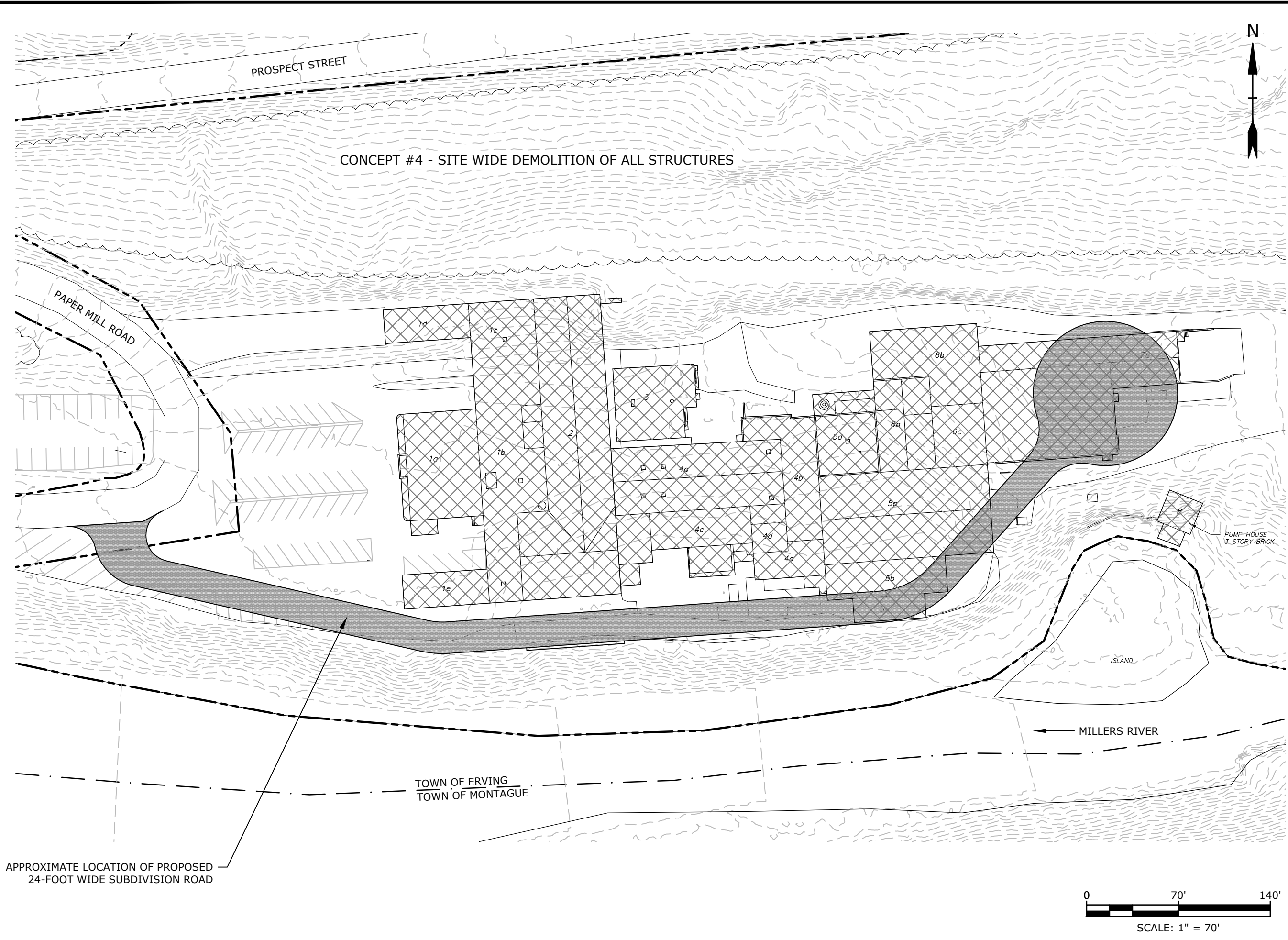
**Concept 3: Demolish all structures with exception to Buildings 2 and 8 and Building 2 Repairs**

Revised 3/20/2023

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Abatement,  
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Concepts #1 - #4

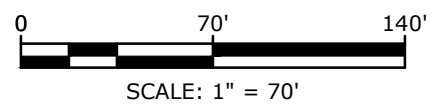
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APPROVED:	TJA	

APPENDIX A - DEMOLITION  
CONCEPT PLAN #4

SCALE: 1" = 70'

**CP-04**  
SHEET 4 OF 4



**OPINION OF PROBABLE ABATEMENT, DEMOLITION AND REPAIR COST****Project: International Paper Mill - Selective Building Abatement and Demolition****Location: Erving MA****Concept 4: Abatement and demolition of all structures on site****Revised 3/20/2023**

<b>ACTIVITY</b>	<b>COST</b>
<b>Building / Complex Information</b>	
Abatement and demolition of all site structures as one project	
<b>Conceptual Opinion of Probable Construction Costs</b>	
Site Wide Building Demo all Structures	\$1,982,300
Fill Deep Voids	\$125,000
Site Wide Asbestos and Hazardous Building Material Abatement	\$695,000
<b>Subtotal OPCC</b>	<b>\$2,802,300</b>
<b>2023 Allowances</b>	
Contingency (20% )	\$561,000
General Conditions (15% )	\$421,000
Engineering Fees (20%)	\$561,000
<b>Subtotal Allowances</b>	<b>\$1,543,000</b>
Site wide asbestos and hazardous materials abatement and Building Demolition. Cost opinion does not include extensive site restoration efforts, only restoration necessary to render the site safe.	
	<b>\$4,345,300</b>

This is an Opinion of Probable Construction Cost (OPCC). Tighe & Bond has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing, and that the estimates of probable construction costs are made on the basis of Tighe & Bond's professional judgment and experience. Tighe & Bond makes no guarantee nor warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from this estimate of the Probable Construction Cost.



**APPENDIX B**  
**February 2021 Revised Asbestos-Containing Materials Inventory**  
**Former IP Mill**  
**Erving, Massachusetts**

Sample #	Material	Location	Approximate Quantity	Result	Comment
<b>BUILDING 1 (Original Plans) or 1A (2020 Concept Plans)</b>					
<b>AP</b>	<b>Asphalt based roofing material and roofing cement applications</b>	<b>Building 1- Exterior, roof, all levels</b>	<b>4,300 SF Roofing 200 SF Roof cement</b>	<b>Positive</b>	<b>Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory.</b>
A-01/01A, A-02/02A, A-03/03A	12" Gray floor tile and mastic	Building 1- Second floor, hallway	-	Negative	
A-04/04A, A-05/05A, A-06/06A	12" Green floor tile and mastic	Building 1- Second floor, eastern room	-	Negative	
A-07, A-08, A-09	Ceramic tile adhesive	Building 1- Second floor, bathrooms	-	Negative	
A-10, A-11, A-12	Carpet adhesive	Building 1- First and second floor, various rooms and stairwell	-	Negative	
A-13/13A/13B, A-14/14A/14B, A-15/15A/15B	Sheetrock / seam tape / joint compound	Building 1- First and second floor, various rooms	-	Negative	
A-16, A-17, A-18	Wall panel adhesive	Building 1- Second floor, various rooms	-	Negative	Associated with white wall paneling.
A-19, A-20, A-21	Wall panel adhesive	Building 1- Second floor, various rooms	-	Negative	Associated with brown wall paneling.
A-22/22A, A-23/23A, A-24/24A	5" Cove base and adhesive	Building 1- First and second floor, various rooms	-	Negative	
<b>A-25</b>	<b>Sink undercoat</b>	<b>Building 1- Second floor, kitchenette</b>	<b>(1) 2' x 2' sink</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT</b>
A-26, A-27, A-28	2' x 4' Suspended ceiling panel	Building 1- Second floor, various rooms	-	Negative	

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Sample #	Material	Location	Approximate Quantity	Result	Comment
A-29, A-30, A-31, A-117, A-118	Window frame and expansion joint caulking	Building 1- Throughout upper level, both metal /wood framed and lower level around front door	(4) - 5' x 10' and (6) - 5' x 15' and (1) 8' x 15' upper level window and (2) 5' x 10' ground floor openings; 2 CYDS debris	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
A-38, A-39, A-40	Glass block window frame caulking and expansion joint caulking	Building 1- Lower level glass block window units all sides	930 LF	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
AP	Transite components	Building 1- All floors, throughout	1/8 CYD	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
AP	Fire doors	Building 1- Second floor, doors to Building 2ADD / 2A	(3) CT	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
<b>BUILDING 2ADD / 2A (Original Plans) or 1C / 1B (2020 Concept Plans)</b>					
AP	Asphalt based roofing material and roofing cement applications	Building 2ADD / 2A- Exterior, roof, all levels	10,200 SF Roofing 500 SF Roof cement	Positive	Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory.
A-35, A-36, A-37	Window frame caulking	Building 2ADD / 2A- Ground floor, throughout	260 LF	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
A-38, A-39, A-40	Window frame caulking	Building 2ADD / 2A- Ground floor and second floor, throughout	940 LF	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
AP	Transite components	Building 2ADD / 2A- Ground floor and second floor, throughout	1/2 CYD	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT

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Sample #	Material	Location	Approximate Quantity	Result	Comment
<b>BUILDING 2B (Original Plans) or 1D (2020 Concept Plans)</b>					
<b>AP</b>	<b>Asphalt based roofing material and roofing cement applications</b>	<b>Building 2B- Exterior, roof, all levels</b>	<b>1,600 SF Roofing 150 SF Roof cement</b>	<b>Positive</b>	<b>Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory.</b>
<b>"SHIPPING DOCK" BUILDING or 1E (2020 Concept Plans)</b>					
<b>AP</b>	<b>Asphalt based roofing material and roofing cement applications</b>	<b>"Shipping Dock" Building- Exterior, roof, all levels</b>	<b>1,400 SF Roofing 150 SF Roof cement</b>	<b>Positive</b>	<b>Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory.</b>
<b>BUILDING 2 (Original Plans) or 2 (2020 Concept Plans)</b>					
<b>AP</b>	<b>Asphalt based roofing material and roofing cement applications</b>	<b>Building 2- Exterior, roof, all levels</b>	<b>13,700' SF Roofing 350 SF Roof cement</b>	<b>Positive</b>	<b>Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory.</b>
A-115/115A, A-116/116A	12" Off white floor tile and mastic	Building 2- Basement office area	-	Negative	On rotted wood flooring.
A-41, A-42, A-43	Canvas material	Building 2- Throughout second and third floors	-	Negative	Tacked in place to wood ceiling beams.
<b>AP</b>	<b>Transite components</b>	<b>Building 2- Throughout all levels</b>	<b>1/2 CYD</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT</b>
<b>A-103, A-104, A-105, A-106, A-107, A-108 and A-85, A-86, A-87</b>	<b>Glazing compound</b>	<b>Building 2- Throughout second floor</b>	<b>(15) CT full windows; (30) CT partial windows REMAIN</b>	<b>Positive</b>	<b>ALTHOUGH NOT PART OF FEBRUARY 2020 ABATEMENT PROJECT, ABATEMENT CONTRACTOR REMOVED APPROX. 80 WINDOWS AND ASSOCIATED CAULKING &amp; BOARDED THEM UP. Associated with the 4' x 10' wooden arched windows. Many windows boarded up, others have been partially replaced with vinyl windows but upper section of original wood arched window section remains.</b>

**APPENDIX B**  
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Sample #	Material	Location	Approximate Quantity	Result	Comment
A-80, A-81, A-82	Window frame caulking	Building 2- Throughout entire building (sampled from second floor, south section near shower rooms)	350 LF REMAIN	Positive	ALTHOUGH NOT PART OF FEBRUARY 2020 ABATEMENT PROJECT, ABATEMENT CONTRACTOR REMOVED APPROX. 80 WINDOWS AND ASSOCIATED CAULKING & BOARDED THEM UP. Associated with original wood window openings with arched tops. Caulking beads are sporadic, some of which are concealed behind vinyl replacement windows.
A-44	Gray sink undercoat	Building 2- Second floor, bathroom	-	Negative	
A-45, A-46, A-47	Wall panel adhesive	Building 2- Second floor, bathroom / rooms	-	Negative	Associated with white wall paneling.
A-48, A-49	Vinyl sheet flooring, self stick type	Building 2- Second floor, western rooms, laboratory area	-	Negative	Self adhered type flooring.
A-50, A-51, A-52	Vinyl sheet flooring, pebble pattern	Building 2- Second floor, middle of floor	-	Negative	Associated with a floor area that used to be an enclosed room.
A-53/53A, A-54/54A	12" Off white floor tile and mastic	Building 2- Second floor, southern laboratory space, hallways	-	Negative	Top layer.
A-55, A-56, A-57	Brown wall panel adhesive	Building 2- Second floor, south section, middle laboratory space and middle room	1,100 SF	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
A-58/58A, A-59/59A	Brown vinyl cove base and adhesive	Building 2- Second floor, south section, middle laboratory space and middle room	-	Negative	
A-60/60A, A-61/61A	12" Salmon colored floor tile and mastic	Building 2- Second floor, south section, south laboratory space, cafeteria (top layer)	-	Negative	Middle layer.

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Sample #	Material	Location	Approximate Quantity	Result	Comment
A-62, A-63	Brown jute back flooring	Building 2- Second floor, middle of floor, cafeteria, training room and shower rooms, southwest corner	-	Negative	Bottom layer.
<b>A-83, A-84</b>	<b>Large stone pattern vinyl sheet flooring</b>	<b>Building 2- Second floor, middle of floor, cafeteria, training room and shower rooms, southwest corner</b>	<b>1,900 SF</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT</b>
<b>A-64</b>	<b>Black sink undercoat</b>	<b>Building 2- Second floor, south section, south laboratory space</b>	<b>(1) double sink</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT</b>
A-65/65A, A-66/66A, A-67/67A	12" Gray floor tile and mastic	Building 2- Second floor, south section, training room space	-	Negative	Top layer.
A-68/68A, A-69/69A	12" Blue and white checker pattern floor tile and mastic	Building 2- Second floor, south section, south room near labs	-	Negative	Top layer.
A-70/70B, A-71/71B, A-72/72B	Sheetrock / joint compound	Building 2- Second floor, south section, laboratory areas, cafeteria, and shower rooms	-	Negative	Seam tape not observed or it was plastic mesh. Associated with walls.
A-73/73A, A-74/74A	4" Black cove base and adhesive	Building 2- Second floor, south section, laboratory areas, cafeteria, and shower rooms	-	Negative	
A-75, A-76	2' x 2' Suspended ceiling panels	Building 2- Second floor, south section, laboratory areas, cafeteria, and shower rooms	-	Negative	



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Sample #	Material	Location	Approximate Quantity	Result	Comment
A-77	White sink undercoat	Building 2- Second floor, south section, cafeteria	-	Negative	
A-78/78A, A-79/79A	Sheetrock / joint compound	Building 2- Second floor, south section, laboratory areas, cafeteria, and shower rooms	-	Negative	Boxed-in systems located above ceiling panels. Seam tape not observed.
A-88/88A/88B, A-89/89A/89B, A-90/90A/90B	Sheetrock / seamtape / joint compound	Building 2- Third floor, north offices area	-	Negative	Comprises wall construction.
A-91/91A, A-92/92A	4" Green cove base and adhesive	Building 2- Third floor, north offices area	-	Negative	
A-93	Blue pebble style vinyl sheet flooring	Building 2- Third floor, bathroom	-	Negative	
<b>BUILDING 3 (Original Plans) or 4A (2020 Concept Plans)</b>					
<b>AP</b>	<b>Asphalt based roofing material and roofing cement applications</b>	<b>Building 3- Exterior, roof, all levels</b>	<b>7,400 SF Roofing 200 SF Roof cement</b>	<b>Positive</b>	<b>Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory.</b>
A-94, A-95	Glazing compound	Building 3- Ground floor, throughout	-	Negative	Associated with the (3) 5' x 5' wood arched windows.
<b>AP</b>	<b>Transite components</b>	<b>Building 3- Ground floor, throughout</b>	<b>1/2 CYD</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT</b>
<b>Same as A-38, A-39, A-40</b>	<b>Window frame caulking</b>	<b>Building 3- Second floor, throughout</b>	<b>390 LF</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT, GLASS BLOCK WINDOWS REMAIN, ACM CAULKING REPLACED WITH NON-ACM CAULKING.</b>
<b>Same as A-80, A-81, A-82</b>	<b>Window frame caulking (abated) and Glazing compound (remains)</b>	<b>Building 3- Ground floor, throughout</b>	<b>(3) 5' x 5' wood arched windows REMAIN</b>	<b>Positive</b>	<b>WINDOW CAULKING ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT, ASSUMED ACM GLAZING COMPOUNDS REMAIN. Associated with (3) 5' x 5' wooden arched windows. Windows are deteriorated and boarded up.</b>

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Sample #	Material	Location	Approximate Quantity	Result	Comment
<b>"FUEL STORES" BUILDING (Original Plans) or 3 (2020 Concept Plans)</b>					
<b>AP</b>	<b>Asphalt based roofing material and roofing cement applications</b>	<b>"Fuel Stores" Building- Exterior, roof, all levels</b>	<b>3,200 SF Roofing 150 SF Roof cement</b>	<b>Positive</b>	<b>Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory. Roof deck is metal and may only contain a rubber membrane.</b>
<b>BUILDING 12 (Original Plans) or 4C (2020 Concept Plans)</b>					
<b>AP</b>	<b>Asphalt based roofing material and roofing cement applications</b>	<b>Building 12- Exterior, roof, all levels</b>	<b>2,000 SF Roofing 150 SF Roof cement</b>	<b>Positive</b>	<b>Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory.</b>
<b>A-38, A-39, A-40</b>	<b>Window frame caulking</b>	<b>Building 12- Throughout ground and second floor, south wall</b>	<b>590 LF</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT, GLASS BLOCK WINDOWS REMAIN, ACM CAULKING REPLACED WITH NON-ACM CAULKING. Associated with the (20) glass block windows with interior caulking bead along top of window frame.</b>
<b>AP</b>	<b>Glazing compound and Frame caulking</b>	<b>Building 12- Throughout ground floor, south wall</b>	<b>(8) 6' x 6' metal windows</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT</b>
<b>AP</b>	<b>Transite components</b>	<b>Building 12- Throughout</b>	<b>1/8 CYD</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT</b>
<b>Same as A-80, A-81, A-82</b>	<b>Window frame caulking</b>	<b>Building 12- Throughout ground floor, south wall</b>	<b>30 LF REMAINS</b>	<b>Positive</b>	<b>Associated with wood window system which has been removed and boarded up.</b>
<b>"529 SF" BUILDING (Original Plans) or 4D (2020 Concept Plans)</b>					
<b>AP</b>	<b>Asphalt based roofing material and roofing cement applications</b>	<b>"529 SF" Building- Exterior, roof, all levels</b>	<b>600 SF Roofing 50 SF Roof cement</b>	<b>Positive</b>	<b>Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory. Roof deck is metal and may only contain a rubber membrane.</b>

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Sample #	Material	Location	Approximate Quantity	Result	Comment
<b>BUILDINGS 4, 5, 6 and 7 (Original Plans) or 4B, 4E, 5B, 5A (2020 Concept Plans)</b>					
<b>AP</b>	<b>Asphalt based roofing material and roofing cement applications</b>	<b>Buildings 4, 5, 6 and 7 - Exterior, roof, all levels</b>	<b>15,400 SF Roofing 400 SF Roof cement</b>	<b>Positive</b>	<b>Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory. Roofing quantity for each is: Building #4-2,500 SF; #5-1,000 SF; #6-3,000 SF; #7-8,900 SF and 100 SF of Roofing cement per roof (400 SF total).</b>
<b>A-96, A-97, A-106, A-107, A-108 (wood frame), A-98, A-99 (metal frame)</b>	<b>Glazing compound</b>	<b>Buildings 4, 5, 6 and 7- Throughout</b>	<b>(41) CT 5' x 5' wood windows; (2) CT 1' x 2' metal windows REMAIN</b>	<b>Positive</b>	<b>WINDOWS REMAIN. Associated with the 5' x 5' wooden arched windows and 1' x 2' metal windows throughout the building sections. Many windows boarded up.</b>
<b>Same as A-80, A-81, A-82</b>	<b>Window frame caulking</b>	<b>Buildings 4, 5, 6 and 7- Throughout</b>	<b>800 LF REMAINS</b>	<b>Positive</b>	<b>CAULKING REMAINS. Associated with all windows noted above. No access to confirm presence or absence of frame caulking or to sample.</b>
<b>AP</b>	<b>TSI- Pipe insulation</b>	<b>Building 7- Second floor, near No. 8 PM Pulper area, ceiling level</b>	<b>30 LF</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT</b>
<b>AP</b>	<b>Transite components</b>	<b>Buildings 4, 5, 6 and 7- Throughout</b>	<b>1/2 CYD</b>	<b>Positive</b>	<b>ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT</b>
Same as A-50, A-51, A-52	Vinyl sheet flooring, pebble pattern	Building 7- Third floor	-	Negative	
<b>ROOF OVERHANG connected to Building 6 (unlabeled) (Original Plans) or 5C (2020 Concept Plans)</b>					
<b>AP</b>	<b>Asphalt based roofing cement applications</b>	<b>"Roof Overhang" - Exterior, roof, all levels</b>	<b>400 SF Roof cement</b>	<b>Positive</b>	<b>Assumed ACM roof cement and possible suspect ACM washers associated with the metal overhang.</b>
<b>BUILDING 8 Boiler Room (Original Plans) or 5D and 5E (2020 Concept Plans)</b>					

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AP	Asphalt based roofing material and roofing cement applications	Building 8- Exterior, roof, all levels	2,700 SF Roofing 150 SF Roof cement	Positive	Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory.
A-109, A-110	TSI- Mud Drum insulation, interior rope, gaskets and packings / Boiler Demolition	Building 8- (2) Boiler systems	220 SF	Positive	BOILERS ABATED AND PARTIALLY DEMOLISHED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
A-113, A-114	Interior boiler brick	Building 8- (2) Boiler systems	-	Negative	
AP	Glazing compound / Window frame caulking	Building 8- Throughout	(8) 6' x 6' metal windows and 160 LF of associated caulking REMAIN	Positive	WINDOWS AND CAULKING REMAIN. No access to sample. Presume as ACM until sampling can prove otherwise.
AP	Transite components	Building 8- Throughout	1/2 CYD	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
A-119, A-120	Asphalt based roofing	Building 8- Exterior, around stack	-	Negative	
<b>BUILDINGs 9, 9A, 9B and 10 (Original Plans) or 6A, 6B (partial), 6C and 6B (partial) (2020 Concept Plans)</b>					
AP	Asphalt based roofing material and roofing cement applications	Buildings 9, 9A, 9B and 10- Exterior, roof, all levels	15,400 SF Roofing 400 SF Roof cement	Positive	Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory. Roofing quantity for each is: Building #9-2,700 SF; #9A-1,000 SF; #9B-1,500 SF; #10-3,800 SF and 100 SF of Roofing cement per roof (400 SF total).
Same as A-96, A-97, A-106, A-107, A-108; Same as A-80, A-81, A-82	Glazing compound	Buildings 9, 9A, 9B and 10- Throughout, primarily located throughout Building 10 only	(20) CT 5' x 5' wood windows REMAIN	Positive	WINDOWS REMAIN. Associated with the 5' x 5' wooden arched windows throughout the building sections. Many windows boarded up.

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Same as A-80, A-81, A-82	Window frame caulking	Buildings 9, 9A,9B and 10- Throughout, primarily located throughout Building 10 only	220 LF REMAINS	Positive	CAULKING REMAINS. Associated with all windows noted above. Limited access to confirm presence or absence of frame caulking or to sample. Only caulking remnant observed from ground level.
A-100, A-101, A-102	Fireproofing	Buildings 9A, 9B - Throughout first and second floors	-	Negative	Applied to beams and ceiling decks throughout the buildings noted herein.
Same as A-80, A-81, A-82	Transite components	Building 10- Northwest corner elevator mechanism area and throughout	1/2 CYD	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
<b>"STOCKHOUSE and PULP RECEIVING" BUILDINGS (Original Plans) or 7A and 7B (2020 Concept Plans)</b>					
AP	Asphalt based roofing material and roofing cement applications	"Stockhouse and Pulp Receiving" Buildings- Exterior, roof, all levels	11,600 SF Roofing 200 SF Roof cement	Positive	Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory. Roof deck is metal and may only contain a rubber membrane. Roofing quantity for each is: Stockhouse- 6,000 SF and Pulp Receiving-5,600 SF; and 100 SF of Roofing cement per roof (200 SF total).
<b>BUILDING 17 or 8 (Original Plans) or "PUMPHOUSE" (2020 Concept Plans)</b>					
AP	Asphalt based roofing material and roofing cement applications	Building 17- Exterior, roof, all levels	625 SF Roofing 100 SF Roof cement	Positive	Assumed ACM asphalt based, mutli-layered roofing present. Refer to additional roof related details at the end of this Inventory.
A-121	TSI-Compressed paper	Building 17- Throughout	40 LF	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT
AP	Transite components	Building 17- Throughout	1/2 CYD	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT

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AP	Glazing compound and Frame caulking	Building 17- Throughout	(10) 4' x 10'; (6) 4' x 6'; (4) 10' x 20' metal windows / Openings	Positive	ABATED AS PART OF FEBRUARY 2020 ABATEMENT PROJECT AND OPENINGS BOARDED UP.

**Additional Suspect Asbestos-Containing Roofing Information**

AP	Asphalt based roofing material and roofing cement applications	Refer to Individual Building Referenced Herein	Refer to Individual Building Referenced Herein	Positive	Roof sampling and roof assessments have not been performed in order to maintain integrity to the rubber membrane applications which currently conceal /cover most assumed asbestos-containing roof layers (asphalt based /multi-layered) on most referenced roofs. Overhang off of Building 6 is metal. Fuel Stores, Stockhouse and Pulp Receiving roofs appear to be rubber only (14,800 SF of roofing). All roof levels require an asbestos investigation coupled with bulk sampling to confirm or deny the presence of asbestos content. Roofing cement applications are observed on ACM roofing but also sporadic coverage on or around substrates such as parapets and metal roof edges. Roof cement quantity represents coverage outside of roof fields and layers.
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**This building wide asbestos survey was conducted by Tighe & Bond over the course of several years and in several phases. Asbestos survey efforts were performed as part of various Feasibility Studies and for the February 2020 Site Wide Asbestos and Hazardous Materials Abatement Project. Building nomenclature was derived from an original set of floor plans and a revised 8/2020 and renumbered Concept Plan-Roadway and Mill Demolition Plan. Each set of Plans are appended to this report.**

**LEGEND:**

ACM = Asbestos-Containing Material

AP = Assumed Positive

SF = Square Feet

LF = Linear Feet

TSI = Thermal System Insulation

CT = Count

Survey Completed By:



Brian F. Day

MADLS # AI061695

Tighe & Bond - 120 Front Street, Suite 7, Worcester, MA



**2023 ABATEMENT AND DEMOLITION COST OPINION  
FORMER IP MILL  
ERVING, MASSACHUSETTS  
MARCH 2023**

Building# / Group	2017 Demolition Estimate	2023 Demolition Estimate	2023 Asbestos Abatement Estimate	Soil or Structural Repair Estimate	Cost Opinion Comments
<b>Building 1 / (1a - 1e) Total</b>	<b>\$146,950</b>	<b>\$166,000</b>	<b>\$110,000</b>	-	<b>\$22,000 demolition cost opinion increase since 2017. Demolition costs have increased due to inflation, transportation cost, waste disposal premiums and reduced scrap steel / recycling cost. Site wide asbestos abatement cost was reduced significantly since 2017 due to completion of a 2020 site wide abatement effort. Building 1 abatement cost opinion is reflective of assumed asbestos roofing applications present on all roof levels comprising Building 1.</b>
<b>Building 1a</b>	<b>\$36,000</b>	<b>\$41,000</b>	<b>\$32,000</b>	-	<b>Assumed asbestos roofing applications present.</b>
<b>Building 1b</b>	<b>\$84,000</b>	<b>\$88,000</b>	<b>\$31,000</b>	-	<b>Assumed asbestos roofing applications present.</b>
<b>Building 1c</b>	<b>\$13,750</b>	<b>\$18,000</b>	<b>\$31,000</b>	-	<b>Assumed asbestos roofing applications present.</b>
<b>Building 1d</b>	<b>\$6,600</b>	<b>\$9,500</b>	<b>\$8,000</b>	-	<b>Assumed asbestos roofing applications present.</b>
<b>Building 1e</b>	<b>\$6,600</b>	<b>\$9,500</b>	<b>\$8,000</b>	-	<b>Assumed asbestos roofing applications present.</b>
<b>Building 2</b>	<b>\$317,040</b>	<b>\$825,000</b>	<b>\$130,000</b>	<b>\$275,000 structural repair estimate in the event Concepts 2 or 3 are selected</b>	<b>The structural repair estimate is applied to Concepts 2 and 3 only and is in addition to the demolition cost. Demolition costs have increased since 2017 due to inflation, transportation cost, waste disposal premiums and varying scrap steel / recycling pricing. Building 2 is the largest and tallest multi-story building requiring specialized demolition equipment to safely access, demolish and to segregate / salvage wood beams, etc. A large quantity of asbestos window systems remain and all roofing materials are assumed as asbestos.</b>
<b>Building 3</b>	<b>\$9,660</b>	<b>\$21,000</b>	<b>\$26,000</b>	-	<b>\$11,500 demolition cost opinion increase since 2017 includes cleaning of residual oils contained in the distribution system which was not identified in 2017. Demolition costs have also increased due to inflation, transportation cost, waste disposal premiums and varying scrap steel / recycling cost.</b>



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Building 4 (4a, 4b, 4c, 4d, 4e, 4f)	\$219,500	\$405,300	\$125,000	\$75,000 soil borrow placement anticipated in this area	Soils cost not included in 2017. \$186,000 demolition cost opinion increase since 2017. Demolition cost increase is partly due to extensive concrete / rebar management and deep excavation efforts in and around concealed building areas. Increases are also due to inflation, transportation cost, waste disposal premiums and varying scrap steel / recycling cost.
Building 4a	\$118,000	\$235,000	\$37,000	-	Assumed asbestos roofing applications present.
Building 4b	\$54,700	\$85,000	\$37,000	-	Assumed asbestos roofing applications present.
Building 4c	\$27,000	\$42,000	\$25,000	-	Assumed asbestos roofing applications present.
Building 4d	\$4,300	\$15,000	\$9,000	-	Assumed asbestos roofing applications present.
Building 4e	\$6,000	\$11,800	\$8,500	-	Assumed asbestos roofing applications present.
Building 4f	\$9,500	\$16,500	\$8,500	-	Assumed asbestos roofing applications present.
Building 5 (5a, 5b, 5c, 5d)	\$290,100	\$359,000	\$125,000	\$50,000 soil borrow placement anticipated and \$215,000 structural repair estimate in the event Concept 1 is selected	Soils cost opinion not included in 2017. Stack demolition opinion not included in 2017 therefore \$69,000 demolition cost opinion increase since 2017. Demolition costs have increased due to inflation, transportation cost, waste disposal premiums and varying scrap steel / recycling cost. Building 5e is identified in the 2017 report and has been included in the 5d section of this report.
Building 5a	\$207,600	\$240,000	\$64,000	-	Assumed asbestos roofing applications present.
Building 5b	\$45,000	\$57,000	\$42,000	-	Assumed asbestos roofing applications present.
Building 5c	\$3,000	\$5,000	\$3,000	-	Assumed asbestos roofing applications present.
Building 5d (and 5e)	\$34,500	\$57,000	\$16,000	-	Assumed asbestos roofing applications present.
Building 6 (6a, 6b, 6c)	\$120,150	\$130,000	\$83,000	-	\$10,000 demolition cost opinion increase since 2017. Demolition costs have increased due to inflation, transportation cost, waste disposal premiums and varying scrap steel / recycling cost.

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Building 6a	\$45,000	\$49,000	\$31,000	-	Assumed asbestos roofing applications present.
Building 6b	\$45,900	\$49,000	\$28,000	-	Assumed asbestos roofing applications present.
Building 6c	\$29,250	\$32,000	\$24,000	-	Assumed asbestos roofing applications present.
Building 7 (7a, 7b)	\$33,000	\$41,000	\$88,000	-	Demolition cost opinions have increased due to inflation, transportation cost, waste disposal premiums and varying scrap steel / recycling cost.
Building 7a	\$18,000	\$23,000	\$64,000	-	Assumed asbestos roofing applications present.
Building 7b	\$15,000	\$18,000	\$24,000	-	Assumed asbestos roofing applications present.
Building 8	\$5,600	\$35,000	\$8,000	-	\$29,000 demolition cost opinion increase since 2017 due to the need to conduct demolition adjacent to a waterway which will include extensive permitting. Building access is also difficult.
<p>This is an Opinion of Probable Construction Cost (OPCC). Tighe &amp; Bond has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing, and that the estimates of probable construction costs are made on the basis of Tighe &amp; Bond's professional judgment and experience. Tighe &amp; Bond makes no guarantee nor warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from this estimate of the Probable Construction Cost.</p>					